ABSTRACT

A method and apparatus are disclosed for increasing the time and frequency diversity of a multi-stream signal in a DAB system. A plurality of audio streams are divided into four (4) digital sub-streams, C_{00}, C_{01}, C_{10}, and C_{11}. Each sub-stream C_{00}, C_{01}, C_{10}, and C_{11} is assigned a unique frequency band, and time slot. A first core sub-stream C_{10} is mapped to one frequency partition and a second core sub-stream C_{00} is mapped to another frequency partition and delayed relative to the first core sub-stream. Similarly, two enhancement sub-streams C_{11} and C_{01} are mapped to different frequency partitions and are time delayed relative to each other and the core sub-streams. The two core sub-streams C_{00} and C_{10} can have a maximum separation across both the time and frequency axes. Each core sub-stream C_{00} and C_{10} is separate from one of the enhancement sub-streams in the frequency domain and separate in the time domain from the other enhancement sub-stream. Each core sub-stream C_{00} and C_{10} can be combined with any other available core or enhancement sub-stream to form a 64 kbps PAC. In addition, a 96 kbps PAC can be obtained by combining the two core sub-streams C_{00} and C_{10} with one of the enhancement sub-streams C_{01} or C_{11}. Finally, the combination of all four sub-streams produces a full-rate 128 kbps PAC.

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